

the elements not directly related to the two digits (III & IV) which were alone normally functional were in a backwardly developed state, as though they had been subjected to an arrest in growth. This was especially the case with the intermedium (*i*) and centrale (*c*). That the departures from the normal here met with admit of ready explanation on purely physiological grounds is sufficiently clear; but the case is none the less interesting morphologically, as in those Urodeles possessed of numerically reduced digits both the reduction and fusion of all parts involved are invariably effected in a progressive manner from the post-axial or outer side inwards<sup>1</sup> and accompanied by a diminution in length of the outermost digit.

Numerical variation of the digits is most marked among the Amphiumidæ of all living Urodeles, the individual variations being such as to have led Cope to the conclusion<sup>2</sup> that *Amphiuma tridactyla* is but a variety of *A. means*, the digits of the species ranging from 1 to 3 in number in both fore and hind limbs. These facts, taken in conjunction with the recent discovery of a fleeting vestige of the pelvic member in one alone among a series of larvæ of *Ichthyophis glutinosa* examined by the cousins Sarasin<sup>3</sup>, show that individual variations of the kind herein recorded may realize (admittedly in a perhaps distorted form at times) the steps by which the reduction and loss of limbs have been effected in allied genera and species.

---

March 28, 1893.

Sir W. H. FLOWER, K.C.B., LL.D., F.R.S., President, in the  
Chair.

Mr. Arthur Thomson, the Head Keeper, exhibited a series of Insects reared in the Insect-house in the Society's Gardens during the past year, and read the following Report on the subject:—

*Report on the Insect-house for 1892.*

Examples of the following species of Insects have been exhibited in the Insect-house during the past season:—

*Silk-producing Bombyces and their Allies.*

Indian.

<i>Attacus atlas.</i>	<i>Antheræa mylitta.</i>
— <i>cynthia.</i>	<i>Actias selene.</i>
— <i>pernyi.</i>	<i>Oricula trifenestrata.</i>
— <i>roylei.</i>	

<sup>1</sup> Cf. Baur, 'Beitr. z. Morphogenie d. Carpus und Tarsus.' Th. I. Batrachia. Jena, 1888.

<sup>2</sup> Proc. Amer. Phil. Soc. 1886, p. 526. Cf. also Hay, Amer. Nat. 1888, p. 315; and Cope, Batrachia of N. America, p. 218.

<sup>3</sup> Ergebnisse Naturwiss. Forschung. auf Ceylon, Bd. ii. Hft. 2, p. 22. Wiesbaden, 1887

## Japanese.

\**Caligula japonica*.

## Australian.

\**Caligula eucalypti*.

## American.

*Samia cecropia*.  
*Telea polyphemus*.  
 ——— *promethea*.

*Telea angulifera*.  
*Hypochera io*.  
*Actias luna*.

## Diurnal Lepidoptera.

## European.

*Papilio podalirius*.  
 ——— *machaon*.  
 ——— *alexanor*.  
*Thais polyxena*.  
*Parnassius apollo*.  
*Lycæna corydon*.  
*Vanessa levana*.

*Vanessa atalanta*.  
 ——— *io*.  
 ——— *cardui*.  
*Argynnis aglaia*.  
*Colias edusa*.  
*Melunargia galathea*.

## American.

*Papilio ajax*.  
 ——— *asterias*.

*Papilio philenor*.  
*Limenitis disippus*.

## Nocturnal Lepidoptera.

*Smerinthus ocellatus*.  
 ——— *populi*.  
 \**Deidamia inscripta*.  
 \**Triptogon modesta*.  
 \**Cressonia juglandis*.  
 \**Paonias excecatus*.  
 \**Sphinx eremita*.  
 ——— *ligustri*.  
*Deilephila euphorbiae*.  
 ——— *galii*.

*Chærocampa elpenor*.  
*Macroglossa fuciformis*.  
*Saturnia pyri*.  
 ——— *carpini*.  
*Eacles regalis*.  
 ——— *imperialis*.  
 \**Anisota rubicunda*.  
*Clostera anachoreta*.  
*Diphthera orion*.

\* Exhibited for the first time.

Of the insects which I have the honour to place before the Meeting this evening the following are exhibited for the first time, viz.:—*Caligula japonica*, *Caligula eucalypti*, *Deidamia inscripta*, *Triptogon modesta*, *Cressonia juglandis*, *Paonias excecatus*, *Sphinx eremita*, and *Anisota rubicunda*.

The cocoons of *Caligula eucalypti* were sent from Australia by Mr. Le Souef, of the Zoological Gardens, Melbourne, and I hope to be able to get more, and to obtain the larvæ of this beautiful species.

Of the five species of American Sphingidæ exhibited for the first time, the specimens of *Triptogon modesta* are worthy of notice.

I exhibit this evening a fine male specimen of *Actias mimosæ*. This specimen emerged from one of three cocoons, deposited *this year* (1893) by the Hon. Walter Rothschild, F.Z.S., and, although I have had the cocoons on one occasion before, this is the first *perfect* specimen obtained.

The following papers were read:—

1. Descriptions of new Species of Lepidoptera Heterocera from Central and South America. By HERBERT DRUCE, F.L.S., F.Z.S., &c.

[Received March 28, 1893.]

(Plates XIX.—XXI.)

The following descriptions of ninety-eight new species of Heterocera from tropical America represent twelve families, four subfamilies, and forty genera, two of which are new.

Many of the species of the Dioptidae are of considerable interest, as they very closely resemble some of the butterflies belonging to the family Danainae from the same localities. All the types are in my own collection.

Fam. ÆGERIIDÆ.

ÆGERIA, Fabr.

ÆGERIA (?) CERACA, sp. n.

Primaries dark purplish brown, a streak from the base to the end of the cell hyaline, beyond the end of the cell a large golden yellow spot; the fringe dark brown. Secondaries hyaline, with the veins, outer margin, and fringe dark purplish black. Head and palpi black, the front of the head white, collar steel-blue; thorax dark brown; abdomen bright orange; the two anal segments and the tuft dark blackish brown; legs bluish black.

Expanse  $1\frac{4}{10}$  inch.

*Hab.* British Guiana, Essequibo River (*Whitely, Mus. Druce*).

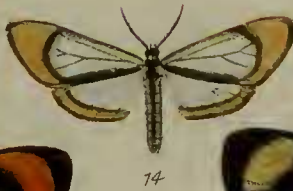
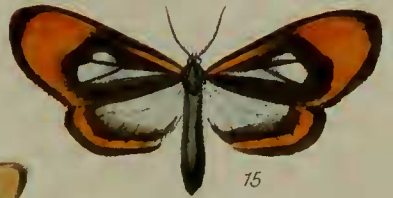
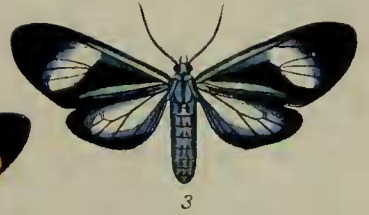
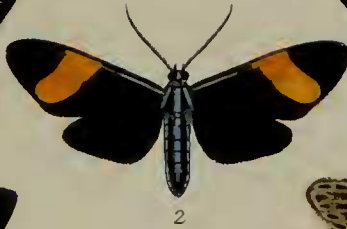
A fine distinct species quite unlike any other known to me. I have placed it in the genus *Ægeria* with considerable doubt.

Fam. CASTNIIDÆ.

CASTNIA, Fabr.

CASTNIA ENDELECHIA, sp. n.

Primaries pale brown, almost white along the inner margin, a short white streak near the base, and a white band crossing the wing beyond the middle, from the costal to the outer margin; the fringe pale brown. Secondaries pure white, the veins near the outer margin edged with bright red, a lunular-shaped black mark



W. Parkiss lith.

Hanhart imp.





1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17

W Purkiss lith

Hanhart imp





W. Purkiss lith.

Hanhart imp

NEW SOUTH AMERICAN HETEROCERA





at the end of the cell, thickly irrorated with red on the inner side, a round black spot near the apex, and a submarginal row of elongated spots edged with red on the inner edge; the outer margin and the veins black; the fringe pale brown. Underside similar to the upperside, but paler in colour and entirely without any red round the black markings. Head, thorax, and legs pale brown; abdomen greyish white. Antennæ wanting.

Expanse  $3\frac{1}{2}$  inches.

*Hab.* Argentine Republic, Corrientes (*Mus. D.*).

A very distinct species, allied to *C. eudlesmia*, Gray.

#### Fam. ZYGENIDÆ.

#### AUTOCHLORIS, Hübn.

##### AUTOCHLORIS ORATHA, sp. n.

Primaries deep black, the basal half of the wing hyaline, beyond which are square hyaline spots, the first close to the costal margin, the second below and nearer the anal angle. Secondaries black, with a round hyaline spot about the middle, and an oval hyaline spot on the inner margin close to the base. Underside the same as above, but paler in colour and with the costal margin of the secondaries from the base to near the apex bright metallic green. Antennæ and palpi black, front of head white. Head, thorax, and abdomen above deep black, the underside of the abdomen white. Tegulæ with a bright red spot at the base, and a bright red spot on each side of the abdomen close to the base.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* British Guiana, Essequibo River (*Whitely, Mus. D.*).

This species is allied to *Autochloris varipes*, Walker, but can at once be distinguished from that species by its larger size, more hyaline wings, entirely black abdomen, red spots on the tegulæ and at the base of the abdomen.

#### AGYRTA, Hübn.

##### AGYRTA CHENA, sp. n.

*Male.* Primaries hyaline, the costal margin, apex, and inner margin broadly bordered with deep black, an oval white spot near the apex; a pale bluish-white streak extends along the inner margin from the base to the anal angle; the fringe black. Secondaries hyaline, the costal apex and outer margin broadly bordered with black, the inner margin bluish white. Underside very similar to the upperside, but without the bluish-white streak on the primaries. Antennæ and palpi black, front of the head, underside of the thorax, and abdomen white; legs greyish white on the upperside; back of the head and collar bright red; tegulæ black, edged with bluish white; thorax and abdomen dark blue, with a white line down the middle.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Upper Amazons (*Mus. D.*).

## AGYRTA PANDEMIA, sp. n.

*Male.* Primaries black, the veins shot with bright blue near the base; a wide white band partly crosses the wing beyond the middle, from the costal margin to near the apex, but not reaching it. Secondaries hyaline; the costal margin, apex, and outer margin black shot with blue, the inner margin deep blue. The underside very similar to the upperside, but paler in colour. The head, antennæ, palpi, and thorax black; abdomen blue-black, the underside greyish white.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Lower Amazons, Para (*Mus. D.*).

## AGYRTA PHYLLA, sp. n. (Plate XIX. fig. 1.)

*Male.* Primaries and secondaries hyaline; the veins black. Primaries crossed beyond the middle from the costal margin to the outer margin, above the anal angle, by a wide black band; the costal margin, apex, outer and inner margins bordered with black, shot with dark blue. Secondaries bordered with black on the costal margin, apex, and outer margin; the fringes of both wings black. Underside very similar to the upperside, with the costal margin of both wings edged with white. Antennæ black; palpi black, white on the underside; front of the head white, the underside of the head bright red; thorax and tegulæ black; abdomen dark blue, with a narrow white line extending from the base to the anus; underside of the abdomen and the legs white.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Santa Lucia (*Wolf, Mus. D.*).

Allied to *A. micilia*, Cram., but very distinct.

## ICHORIA, Butl.

## ICHORIA CHALCOMEDUSA, sp. n.

Primaries deep black, slightly shot with green at the base. Secondaries hyaline; the apex and outer margin edged with black, the fringes of both wings black. Palpi, thorax, and legs black. The head and a large spot at the base of the thorax bright metallic blue. The abdomen greenish black. Antennæ black, tipped with white.

Expanse  $1\frac{4}{10}$  inch.

*Hab.* S. Brazil, Porto Real (*Mus. D.*).

Allied to *Ichoria tricineta*, H.-S., but very distinct.

## ARGYROEIDES, Butl.

## ARGYROEIDES (?) ORTONA, sp. n.

Primaries and secondaries whitish hyaline; the veins brownish black, excepting at the base of the primaries, where they are pale yellow. Primaries: the apex, outer and inner margins, bordered with brownish black, widest at the apex. Secondaries with only the marginal line black; the fringes of both wings black, the

underside of the secondaries whitish at the base. Head, antennæ, palpi, thorax, abdomen, and legs black; the underside of the abdomen white.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

I provisionally place this insect in the genus *Argyroeides*, Butler, from which it differs in having rather longer and wider primaries and longer secondaries; the antennæ are also slightly more deeply pectinated.

#### SYNTRICHURA, Butl.

##### SYNTRICHURA CERES, sp. n.

*Male.* Primaries hyaline white; the veins, apex, outer and inner margins black. Secondaries hyaline, the apex broadly bordered with black. The head and thorax black, front of head and the collar white. Antennæ and legs black. Abdomen above dark bluish black, with a row of white spots down the middle from the base to the anus. The underside of the thorax and abdomen greyish white.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* British Guiana, Essequibo River (*Whitely, Mus. D.*).

A very distinct species, not nearly allied to those already described.

#### Fam. ARCTIIDÆ.

##### Subfam. CHARIDEINÆ.

##### CHARIDEA, Dalm.

##### CHARIDEA ORBONA, sp. n. (Plate XIX. fig. 2.)

*Male.* Primaries and secondaries deep black. Primaries streaked with blue on the costal margin, close to the base. A wide orange band crosses the wing beyond the middle from the costal margin to the outer margin above the anal angle. Underside very similar to the upperside, but the secondaries are shot with dark blue at the base and on the costal margin; the fringes of both wings black. Head, thorax, abdomen, antennæ, and legs black. Collar, tegulæ, and a narrow line down the middle of the abdomen bright blue.

*Female* identical with the male.

Expanse, ♂ ♀,  $1\frac{3}{4}$  inch.

*Hab.* S.E. Brazil, Santa Catharina (*Mus. D.*).

A very distinct species, allied to *Charidea jynx*, Hübn., from which it is at once distinguished by entirely wanting the broad yellow band on the inner margins of the primaries.

#### ANDROCHARTA, Feld.

##### ANDROCHARTA LEECHI, sp. n.

*Male.* Primaries dark brown, with two small metallic blue spots at the base, a round spot in the cell nearest the costal margin,

a spot below the cell, and three spots beyond the end of the cell all creamy white. Secondaries creamy white, clouded with brown at the base and partly along the costal margin. The head, antennæ, palpi, thorax, abdomen, and legs dark brown; the back of the head and the collar metallic blue; the base of the tegulæ creamy white; the three basal segments of the abdomen above bright red, edged with metallic blue. Underside very similar to the upperside, but secondaries are dark brown, with only a small creamy white spot in the middle.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Brazil, Ceará (*Leech, Mus. D.*).

I am indebted to Mr. Leech for an example of this fine species, which I have much pleasure in naming after him; it was captured by Mr. Leech at Ceará in August 1884.

#### Subfam. CTENUCHINÆ.

##### EUAGRA, Walk.

##### EUAGRA CERYMICA, sp. n.

Primaries black, shot with bright blue from the base along the costal and inner margin; a hyaline spot similar to that in *Euagra angelica*, Butler, but shorter and broader, not reaching almost to the base of the wing as in that species. Secondaries hyaline; the costal margin and apex broadly black; the inner margin and anal angle bright blue. Underside as above, but with no blue on the wings. Antennæ, palpi, and legs black. Head bright red; abdomen dark blue.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Panama (*Boucard, Mus. D.*).

This species is allied to *Euagra angelica*, Butl., from which it is at once distinguished by the bright red head and much shorter and wider hyaline spot on the secondaries.

#### Subfam. PERICOPINÆ.

##### METASTATIA, Butl.

##### METASTATIA PAMPA, sp. n.

Sexes alike. Primaries black, hyaline at the base and a wide band crossing the wing beyond the middle from the costal margin to the anal angle; the costal and inner margin dark bright blue from the base to about the middle. Secondaries hyaline; the costal apex and outer margin black; the inner margin deep blue. Underside similar to the upperside, but paler in colour and without any blue shade. Antennæ, palpi, and legs black; thorax and abdomen above dark bright blue, on the underside black; the anus yellowish white.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A small species, allied to *Metastatia saphira*, Staudinger.

## METASTATIA OSSA, sp. n.

Sexes alike. Primaries hyaline, the veins black. Costal apex, outer and inner margin, and a wide band crossing the wing about the middle black, with a rich blue gloss. Secondaries hyaline; the apex and outer margin black, glossed with dark blue. Underside as above, but without the blue gloss. Antennæ, palpi, and legs black; the head, thorax, and abdomen deep blue; the underside of the abdomen greyish white.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Colombia, interior (*Wheeler, Mus. D.*).

A very beautiful species, allied to *M. pampa*, Druce.

## METASTATIA CHELIDON, sp. n. (Plate XIX. fig. 3.)

Primaries black, with a rather wide hyaline band crossing the wing beyond the middle; the costal margin, the outer edge of the white band, and the inner margin bright dark blue; the apex tipped with white. Secondaries hyaline; the costal apex, outer and inner margins bright dark blue. Underside similar to the upperside, but browner in colour and with the base of both wings shot with blue. Antennæ, palpi, and legs black; head, thorax, and abdomen dark blue; tegulæ black, edged with blue; abdomen with a white line down the middle; underside of the abdomen white, with a black line down the middle.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Colombia, interior; Ecuador, Sarayacu (*Buckley, Mus. D.*).

A beautiful species, not closely allied to any known to me.

## METASTATIA (?) PALES, sp. n. (Plate XIX. fig. 4.)

*Male.* Primaries black, shot with blue at the base, a short streak close to the base, a wide band crossing the wing about the middle from near the costal margin to the anal angle, which it does not quite reach, and a small, apical, oval spot all hyaline. Secondaries hyaline; the costal apex and outer margin blue-black; the veins black. Underside: both wings very similar to the upperside, but without any blue gloss. Head, antennæ, and thorax black. Abdomen dark blue; the anal segment edged with white; a white line on each side of the abdomen and one down the middle; the underside of the abdomen white, of the head and front of the thorax orange-yellow; legs black, white on the upperside.

*Female* very similar to the male, but has the hyaline markings on the primaries rather larger.

Expanse, ♂ ♀,  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A very distinct species, not closely allied to any other known to me.

## EUCYANE, Hübn.

## EUCYANE POLIANA, sp. n.

*Female.* Primaries deep black, crossed beyond the middle from

the costal margin to the anal angle by a wide white band. Secondaries brownish black, with a dark blue shade at the base; the fringes of both wings black. The head, palpi, antennæ, thorax, legs, and underside of the abdomen black; the upperside of the abdomen blue-black.

Expanse  $2\frac{1}{4}$  inches.

*Hab.* British Guiana, Essequibo River (*Whitely, Mus. D.*).

Not closely allied to any species known to me.

*EUCYANE ORTROPEA*, sp. n.

Primaries and secondaries deep black. Primaries crossed beyond the middle from the costal margin to the anal angle by a narrow dark chrome-yellow band, deeply dentated on the outer edge; the fringes of both wings black. Underside very similar to the upperside, but the yellow band is slightly wider. Head, antennæ, thorax, abdomen, and legs deep black; palpi above black, on the underside yellow.

Expanse  $2\frac{1}{4}$  inches.

*Hab.* Colombia, interior (*Wheeler, Mus. D.*).

A very distinct species, allied to *E. chilton*, Druce.

*EUCYANE PHILOMELA*, sp. n.

Primaries black, shot with rich dark blue; the cell hyaline; a wide hyaline band crosses the wing beyond the middle, from the costal margin almost to the anal angle, beyond which, nearer the apex, is a small hyaline band; the inner margin, from the base almost to the anal angle, broadly streaked with bright pale blue; the fringe black. Secondaries hyaline, shot with dark blue; the veins, costal, outer and inner margins broadly bordered with black; a light blue line extends from the base along the inner margin almost to the anal angle, but does not quite reach it; the fringe white. Underside very similar to the upperside, but slightly paler in colour. Antennæ, palpi, head, tegulæ, and legs black; thorax and abdomen dark bluish black; a bright blue line extends down the middle of the abdomen from the base to the anus; the underside of the abdomen white.

Expanse  $2\frac{1}{4}$  inches.

*Hab.* Interior of Colombia (*Mus. D.*).

A distinct and beautiful species, somewhat resembling *Phanoptis cyanomelas*, Felder, which is wrongly placed in the genus *Isostola* by Kirby in his catalogue of Lepidoptera Heterocera.

Subfam. PHEGOPTERINÆ.

*NEOZATREPHES*, gen. nov.

*Male.* Antennæ long, finely pectinated. Palpi short, hairy, the third joint very minute; thorax and abdomen stout, legs thick. Primaries long and narrow; the costal margin slightly convex; the apex slightly rounded; the inner margin straight; the cell very short, not more than one-third the length of the wing. Secondaries

long, the cell short, the costal margin convex, the apex pointed, the anal angle rounded.

Type: *Neozatrephes telesilla*.

NEOZATREPHES TELESILLA, sp. n. (Plate XIX. fig. 5.)

*Male.* Primaries pale semihyaline brown, crossed from the costal to the inner margin by five indistinct bands of orange-yellow spots, the fourth and fifth very indistinct; a white line extends from the apex to the anal angle and then along the inner margin to the base of the wing; the fringe brown. Secondaries semihyaline pinkish white, darkest along the costal margin. Head and antennæ orange; thorax brown. Abdomen on the upperside red, underside yellow, with the three anal segments white; anal tuft orange; legs reddish orange.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

This species is quite distinct from any known to me; the exceedingly short cell of the primaries at once separates it from all allied forms.

#### EUCEREON, Hübn.

EUCEREON CHALCODON, sp. n. (Plate XIX. fig. 6.)

Primaries dark brown; the veins and several fine lines crossing the wing from the costal to the inner margin pale fawn-colour, the first line zigzag near the base, the second about the middle of the cell, the third beyond, but joining the second line below the cell and then extending to the inner margin, forming a large brown spot about the middle of the wing; a marginal row of pale ring-shaped markings extending from apex to the anal angle; the fringe brown and fawn-coloured. Underside dark brown, with a spot about the middle of the costal margin and a narrow band near the apex greyish white. Secondaries semihyaline white, with the apex, outer margin, and anal angle clouded with brown. The head, thorax, collar, tegulæ, and base of the abdomen dark brown; a large white spot on the base of the thorax; the abdomen bright red, above the underside and the anal segment brownish black; the antennæ and fore legs pale greyish fawn-colour; the hind legs dark brown.

Expanse 2 inches.

*Hab.* S.E. Brazil, Petropolis (*Mus. D.*).

I am indebted to the kindness of Lord Walsingham for the pleasure of describing this distinct species and for adding the specimen to my collection.

#### THYSANOPRYMNA, Butl.

THYSANOPRYMNA CEPIANA, sp. n.

Primaries greyish brown, crossed from the costal to the inner margin by three darker brown bands, the first near the base, the second, the widest, about the middle, the third submarginal. Secondaries hyaline, the veins and the outer margin blackish



brown. Underside similar to the upperside, but the primaries without the bands crossing the wing; the fringes of both wings black. Head, antennæ, palpi, thorax, and abdomen black; abdomen with a row of bright red spots on each side the anal tuft, and a large spot at the base of the abdomen on the underside orange; the underside of the thorax red.

Expanse 2 inches.

*Hab.* Venezuela, Merida (*Mus. D.*).

A fine and distinct species, allied to *Thysanoprymna pyrrophyga*, Walker, from Brazil.

#### HALISIDOTA, Hübn.

##### HALISIDOTA LAROIPA, sp. n.

*Male.* Primaries pale fawn-colour, crossed from the costal to the inner margin with fine zigzag dark brown lines; two spots on the costal margin, one at the end of the cell, and two on the outer margin dark brown; the fringe alternately fawn-colour and dark brown. Secondaries pale yellowish white. Head, antennæ, thorax, abdomen, and legs yellowish fawn-colour.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*); S.E. Brazil (*Mus. D.*).

A common species in Ecuador.

##### HALISIDOTA PANDAMA, sp. n. (Plate XIX. fig. 8.)

*Female.* Primaries citron-yellow, spotted with brown; at the base a band of brown spots crosses the wing at the end of the cell, from the costal to the inner margin, beyond which, near the apex, are several large elongated brown spots; the veins edged with brown on each side along the outer margin; the fringe yellow. Secondaries pale yellowish white, clouded with brown on the outer margin. The head, thorax, and tegulæ citron-yellow; the collar and tegulæ with brown spots; abdomen above dark yellow, white on the underside; antennæ brown; legs brownish white.

Expanse 2 inches.

*Hab.* Ecuador, Malo (*Mus. D.*).

A very distinct species, allied to *H. sesia*, Sepp.

#### PHÆGOPTERA, Boisd.

##### PHÆGOPTERA CHIMERA, sp. n.

*Male.* Primaries deep black. Secondaries white, broadly bordered with black from the apex to the anal angle. Antennæ, palpi, thorax, abdomen, and legs black; two spots on the back of the head, and one on each tegulæ, orange-yellow; abdomen with a row of orange-yellow spots on each side, and with the four anal segments banded with yellow.

Expanse  $2\frac{3}{4}$  inches.

*Hab.* Paraguay (*Mus. D.*).

A fine species allied to *P. umber*, Cram., and *P. aluopia*, Druce, from both of which it is at once distinguished by the white secondaries.

Fam. MELAMERIDÆ.

FLAVINIA, Walk.

FLAVINIA (?) CHOANA, sp. n.

Primaries black, with a wide chrome-yellow band, extending from the base along the inner half of the wing, nearly to the anal angle, and a wide chrome-yellow band crosses the wing near the apex, from the costal to the outer margin; the fringe black. Secondaries black, the inner margin and an oval spot, about the middle of the outer margin, chrome-yellow; the fringe black. Underside very similar to the upperside, but with the costal margin of the secondaries bordered with chrome-yellow. Antennæ, palpi, head, thorax, and tegulæ black; tegulæ edged with chrome-yellow; abdomen above black, with a wide chrome-yellow band on each side; the underside white; legs black.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* East Peru (*Mus. D.*).

This insect is quite unlike any other species known to me.

DEVARA, Walk.

DEVARA CHARISIA, sp. n. (Plate XIX. fig. 7.)

*Male.* Primaries black, with a white spot at the end of the cell, extending downwards to near the anal angle; fringe greyish black. Secondaries white, bordered with black from the apex to the anal angle; the fringe greyish. Underside: both wings very similar to the upperside, but greyer in colour. Antennæ, palpi, head, and thorax black; abdomen above black on the underside, and the legs greyish white.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

Allied to *D. subsericea*, Feld.

DEVARA PALLOB, sp. n. (Plate XIX. fig. 9.)

*Male.* Primaries black, the basal half and oval spot beyond hyaline white. Secondaries hyaline white, bordered with black from the apex to the anal angle; the inner margin edged with black; the fringes black. Underside like the upperside, excepting that the costal margin of the secondaries is black. Antennæ, head, thorax, and abdomen above black; the underside of the thorax yellow, of the abdomen white; the legs greyish black. Female similar to the male.

Expanse  $1\frac{1}{10}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A very distinct species, allied to *D. charisia*, Druce.

## DEVARA CHEPTA, sp. n. (Plate XIX. fig. 10.)

*Male.* Primaries deep black, with a small white streak extending from the base, about halfway across the wing. Secondaries white, very broadly bordered with black from the apex to the anal angle; the fringes of both wings black. Head, antennæ, and palpi black; collar white; abdomen black, spotted with white on each side; legs greyish black.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Bolivia (*Mus. D.*).

Allied to *D. charisia*, Druce, and *D. subsericea*, Feld., but differs greatly from either of them.

## NELO, Walk.

## NELO TOXICRATA, sp. n. (Plate XIX. figs. 11, 12.)

*Male.* Upperside similar to *N. philodamea*, Druce, but rather brighter in colour; on the underside it differs from that species in having a large orange-yellow spot on the primaries, beyond the middle; in all other respects the two species are almost identical.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Peru (*Mus. D.*).

## Fam. D I O P T I D Æ.

## LAURON, Walk.

## LAURON CHOMA, sp. n.

*Female.* Primaries black, hyaline from the base to about the middle; the costal margin yellowish at the base; the inner margin orange-yellow from the base to the anal angle; and two spots on the outer margin orange-yellow, joining a narrow white band that crosses the wing from the costal to the outer margin. Secondaries hyaline; the veins all black; the apex bordered with black; the outer margin broadly banded with orange-yellow. The fringes of both wings greyish black; the underside similar to the upperside, but without the orange-yellow on the inner margin of the primaries. Head, palpi, and antennæ black; thorax orange-yellow; abdomen brownish black, with a bluish-white line down the middle; the underside greyish white; the legs black.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

A distinct species, not closely allied to any known to me.

## LAURON OSIBA, sp. n. (Plate XIX. fig. 13.)

*Male.* Primaries black; a wide streak extending from the base to beyond the middle, whitish hyaline; the costal streaked with orange-yellow from the base nearly to the apex; part of the inner margin and the anal angle bordered with orange-yellow; a narrow white band crosses the wing near the apex, but does not touch either margin. Secondaries whitish hyaline; the apex and

outer margin bordered with black. Underside very similar to the upperside. Head, antennæ, palpi, and thorax black; abdomen greyish blue; legs black.

Expanse 2 inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

LAURON PADUA, sp. n. (Plate XIX. fig. 16.)

Primaries brownish black, with a large central whitish hyaline space in the middle of the wing; the veins black; the costal margin and a wide submarginal band, which extends from the costal margin to the anal angle, brownish yellow. Secondaries whitish hyaline; the outer margin bordered with black, with a rather wide brownish-yellow line extending from the apex to the anal angle. Underside the same as above. Head, antennæ, palpi, thorax, and abdomen black; abdomen with two bluish-white lines extending from the base to the anus; the underside of the abdomen white, with a black line down the middle; the legs black.

Expanse 2 inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A beautiful species, very distinct from any other known to me; it has a great resemblance to *Ithomia corena*, Hew., from the Amazons and Ecuador.

LAURON BATESI, sp. n. (Plate XIX. fig. 15.)

*Male.* Primaries black, with two white spots, one at the end of the cell, and a round one below; the costal margin streaked with yellow at the base; a wide submarginal orange-yellow band crosses the wing from the costal margin to the anal angle. Secondaries whitish hyaline; the outer margin broadly banded with black, and with a narrow orange-yellow line extending from the apex to the anal angle. Underside the same as above. Head, antennæ, palpi, thorax, and underside of the abdomen white; legs black.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Amazons, São Paulo (*Bates, Mus. D.*).

A fine species, allied to *L. padua*, Druce.

LAURON (?) CHARIATA, sp. n. (Plate XIX. fig. 14.)

*Male.* Primaries whitish hyaline, the costal margin, the apical portion of the wing, and the anal angle chrome-yellow; the inner margin and inner and outer margins of the chrome-yellow edged with dark brown, the veins on the hyaline part of the wing black. Secondaries hyaline white, edged with chrome-yellow from the apex to the anal angle; the costal margin dark brown; the fringes of both wings brown. Underside as above. The head, antennæ, palpi, thorax, abdomen, and legs black. Abdomen on the upperside with two white lines extending from the base to the anus; the underside white; tegulæ chrome-yellow.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A small species, not closely allied to any other known to me.

## NEOLAURONA, gen. nov.

*Male.* Antennæ rather long, deeply pectinated. Palpi, the third joint long. Head small; thorax and abdomen stout, the abdomen extending beyond the wings; legs long, slender; hind tibia with two pairs of small spurs. Primaries long, narrow; the costal margin straight; apex rounded. Secondaries long, rounded at the apex and anal angle.

*Female.* Antennæ simple.

Type: *Pericopsis hazara*, Butl.

This genus is allied to *Lauron*.

## NEOLAURONA OVIA, sp. n. (Plate XIX. fig. 17.)

*Female.* Primaries black, crossed from the costal margin by two wide cream-coloured bands; the costal and inner margin near the base, and two small spots near the anal angle, cream-colour. Secondaries cream-colour, the veins black; the costal margin, apex, and outer margin broadly bordered with black; a large cream-coloured spot close to the apex. Underside the same as the upper-side, but paler in colour. Head, antennæ, palpi, thorax, and upper-side of the abdomen black; underside of the abdomen cream-colour; tegulæ black, edged with cream-colour; legs black, greyish on the underside.

*Male.* Unknown.

Expanse, ♀,  $2\frac{1}{4}$  inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A very distinct species, quite unlike any other known to me.

## DIOPTIS, Hübn.

## DIOPTIS CHARILA, sp. n. (Plate XX. fig. 1.)

*Male.* Primaries black, hyaline at the base and partly along the inner margin; a whitish hyaline band crosses the wing beyond the middle nearest the apex. Secondaries hyaline; the veins black; the costal and outer margins broadly bordered with black. Underside very similar to the upper-side, but the costal margin of both wings near the base greyish white. Head, antennæ, palpi, thorax, and abdomen black; the underside of the abdomen, thorax, and legs greyish white; the collar yellow.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* British Guiana, Essequibo River (*Whitely, Mus. D.*).

A very distinct species, allied to *D. onega*, Bates.

## DIOPTIS RORAIMA, sp. n. (Plate XX. fig. 2.)

*Male.* Primaries hyaline; the costal margin, apex, outer and inner margin black; the anal angle and part of the outer margin streaked with orange-yellow; a rather large whitish band close to the apex. Secondaries hyaline; the veins and outer margin black; a wide orange-yellow band edged with black on the inner side extends from the apex to the anal angle. Underside very similar to the upper-side, but with the costal margin of both wings near

the base greyish white. The head, antennæ, palpi, thorax, and abdomen black; tegulæ yellow; a line on each side and one on the underside of the abdomen white; legs above black, greyish white on the underside.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* British Guiana, Roraima Mountain (*Whitely, Mus. D.*).

A pretty species, allied to *D. cyma*, Hübn., and *D. trailii*, Butl.

*DIOPTIS PALLENE*, sp. n. (Plate XX. fig. 3.)

*Male.* Primaries black, hyaline near the base; a wide semi-hyaline whitish band crosses the wing beyond the middle from the costal almost to the outer margin, and an oval whitish spot close to the anal angle. Secondaries hyaline; the veins, costal and outer margins black; a submarginal orange-yellow narrow line extends from the apex to the anal angle. Underside very similar to the upperside, but with the base of costal margin of the secondaries greyish white. Head, underside of the thorax, and abdomen white; antennæ, upperside of the thorax, and abdomen black; legs greyish white; tegulæ yellow.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

*DIOPTIS CHELEDONIS*, sp. n. (Plate XX. fig. 5.)

*Male.* Primaries hyaline; the apex, outer margin, and a narrow band crossing the wing from the costal margin to the anal angle black; a wide white band crosses the wing near the apex from the costal margin nearly to the outer margin, but does not reach it; a square white spot close to the anal angle; a spot at the apex and the inner margin orange-yellow. Secondaries hyaline; the veins, costal and outer margins black; a submarginal line extending from the apex to the anal angle orange-yellow. Underside very similar to the upperside, but generally paler in colour. Head, antennæ, palpi, thorax, and abdomen above black. Underside of abdomen and legs greyish brown; tegulæ yellow.

Expanse 2 inches.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

A beautiful species, quite unlike any other known to me.

*DIOPTIS EGLA*, sp. n. (Plate XX. fig. 4.)

*Male.* Primaries hyaline; the costal and inner margins, apex, and veins dark blackish brown, crossed beyond the middle by a broad band of orange-yellow; a brown band at the end of the cell, a small spot close to the costal margin, and an oval spot near the anal angle whitish hyaline. Secondaries hyaline; the veins and outer margin blackish brown; a submarginal line extending from the apex to the anal angle orange-yellow. The underside very similar to the upperside, but slightly paler in colour. Head, antennæ, palpi, thorax, legs, and the upperside of the abdomen black; underside of the abdomen greyish white. Female almost

identical with the male, but with the costal margin of the primaries orange-yellow to the base.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Amazons, Tunantins (*Bates, Mus. D.*); Ecuador, Sarayacu (*Buckley, Mus. D.*).

A beautiful species, closely resembling *Ithomia eglæ*, Hewitson, also from Ecuador.

*DIOPTIS CHARON*, sp. n. (Plate XX. fig. 6.)

Primaries brownish black, hyaline from the base to the end of the cell and along the inner margin, crossed beyond the middle by a whitish semihyaline band, curved slightly inward near the anal angle. Secondaries hyaline; the veins black, the apex and outer margin bordered with black; a rather wide submarginal orange-yellow line extends from the apex to the anal angle. The head, antennæ, palpi, thorax, and abdomen on the upperside black; abdomen on the underside and legs greyish white. The underside of both wings similar to the upperside.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Bolivia (*Buckley, Mus. D.*).

A distinct species, allied to *D. ilderdina*, Bates, from which it is at once distinguished by its clear hyaline wings.

*DIOPTIS OTANES*, sp. n.

*Male.* Primaries black; two small streaks from the base hyaline; a square spot at the end of the cell, a round spot close to the anal angle, and two small spots close to the apex whitish hyaline. Secondaries hyaline; the costal and outer margins broadly bordered with black; the veins black; an oval-shaped spot at the end of the cell white. The underside the same as above. Front of head white; antennæ, head, thorax, and upperside of the abdomen black; the underside of the abdomen and legs white; the upperside of the legs black; tegulæ orange-yellow.

Expanse  $1\frac{4}{10}$  inch.

*Hab.* Ecuador, Rio Napo (*Whiteley, Mus. D.*).

A small species, allied to *D. noctiluces*, Butler, but with the secondaries quite distinctly marked.

*DIOPTIS PANDATES*, sp. n.

*Male.* Primaries black, partly hyaline near the base; a small spot at the end of the cell, a large oval-shaped spot beyond nearest the apex, and a small elongated spot close to the anal angle white. Secondaries hyaline; the veins black; the costal margin, apex, and outer margin broadly bordered with black. The underside similar to the upperside. The head, antennæ, palpi, thorax, abdomen, and legs black; tegulæ orange-yellow.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Colombia, interior (*Mus. D.*).

A very distinct species, allied to *D. onega*, Bates, and *D. phelina*, Felder.

## DIOPTIS CHLORIS, sp. n.

*Male.* Primaries black, crossed beyond the middle by two small hyaline bands, neither of which reaches the margin of the wing; a small hyaline streak extends from the base as far as the end of the cell. Secondaries whitish hyaline, broadly bordered with black at the apex, outer and inner margins. Underside very similar to the upperside, but the inner margin of the secondaries broadly bordered with greyish white. Head, antennæ, thorax, abdomen, and legs black; the underside of the abdomen white.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

This species is quite unlike any known to me.

## MONOCREAGRA, Feld.

## MONOCREAGRA ORTHYADES, sp. n. (Plate XX. fig. 7.)

Primaries and secondaries dusky hyaline; the veins of both wings black. The costal margin, apex, and outer margin of the primaries bordered with black; the secondaries the same. Underside similar to the upperside. Head, antennæ, palpi, thorax, abdomen, and legs black; the underside of the abdomen greyish brown.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

Allied to *M. pheloides*, Feld., from which it is at once distinguished by the entire absence of the white band on the primaries.

## MONOCREAGRA (?) CHARES, sp. n. (Plate XX. fig. 8.)

Primaries and secondaries hyaline; the veins dark brown. Primaries crossed at the end of the cell by a brown band, beyond which a wide orange-yellow band crosses the wing from the costal to the outer margin, almost reaching the anal angle. Secondaries with the outer margin shaded with orange-yellow; the fringes brown. Underside very similar to the upperside. Antennæ black; the head, thorax, abdomen, and legs dark brown; the underside of the abdomen brownish white.

Expanse 2 inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A fine species, exceedingly distinct from any other known to me.

## MONOCREAGRA (?) CHORAX, sp. n. (Plate XX. fig. 9.)

*Male.* Primaries and secondaries, the veins, and the apex of the primaries black; a small white band crosses the wing beyond the middle. Secondaries with the costal and outer margins bordered with black. Underside as above; the fringes of both wings black. The head, antennæ, thorax, and abdomen black; underside of the abdomen white.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

Not closely allied to any described species.



## ASTYOCHIA, Druce.

## ASTYOCHIA PALLENE, sp. n.

*Male.* Primaries and secondaries white, very slightly hyaline; the veins of both wings pale brown; the fringes white. Head, thorax, abdomen, and legs white; antennæ dark brown.

Expanse  $1\frac{1}{10}$  inch.

*Hab.* British Guiana (*Whitely, Mus. D.*).

## ASTYOCHIA PAULINA, sp. n.

*Male.* Primaries hyaline grey, crossed about the middle by a wide whitish hyaline band, beyond which on the costal margin close to the apex a second band partly crosses the wing. Secondaries whitish hyaline; the costal, outer and inner margins broadly bordered with pale grey. Antennæ black; head, thorax, abdomen, and legs greyish black.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Intaj and Sarayacu (*Buckley, Mus. D.*).

## POLYPÆTES, Druce.

## POLYPÆTES COLANA, sp. n.

*Male.* Primaries dark brown; the veins and a large round spot at the apex yellow. Secondaries white, broadly bordered with black from the apex to the anal angle; the inner margin grey. Underside very similar to the upperside, but the base of the primaries white. The head, antennæ, thorax, abdomen, and legs black.

Expanse  $1\frac{1}{10}$  inch.

*Hab.* East Peru (*Whitely, Mus. D.*).

Allied to *Polypætes erymas*, Druce.

## POLYPÆTES CLETOR, sp. n.

*Male.* Primaries and secondaries black. Primaries crossed about the middle from the costal to the inner margin by a wide white band; the veins and a small spot on the outer margin nearest the apex yellow; the fringes of both wings black. The head, antennæ, thorax, abdomen, and legs black.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador (*Buckley, Mus. D.*).

Allied to *P. deldon*, Druce.

## GONORA, Walker.

## GONORA PAPHIA, sp. n. (Plate XX. fig. 14.)

*Male.* Primaries and secondaries blue-black, both wings with a wide submarginal whitish hyaline band, crossed by the black veins; the fringes black. Underside the same as above. The head, antennæ, palpi, thorax, abdomen, and legs black. The front of the thorax, a small spot at the base of the tegulæ, and the underside of the abdomen white.

Expanse  $2\frac{1}{4}$  inches.

*Hab.* East Peru (*Whitely, Mus. D.*).

A very distinct species, allied to *G. heliconiata*, Walk.

Fam. LAPARIDÆ.

EUCHONTHA, Walk.

EUCHONTHA CIRIS, sp. n. (Plate XX. fig. 10.)

*Male.* Primaries dark brown, the basal half white, the veins dark brown, a small spot close to the apex and one near the anal angle white. Secondaries white, broadly bordered with black from the apex to the anal angle. Underside similar to the upper-side; the fringes of both wings black. Antennæ black. Head, thorax, abdomen, and legs greyish white.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Intaj and Sarayacu (*Buckley, Mus. D.*).

A distinct species, allied to *E. sublactigera*, Walk.

GENUSSA, Walk.

GENUSSA CLUACA, sp. n. (Plate XX. fig. 17.)

Primaries and secondaries white. Primaries crossed beyond the middle from the costal to the outer margin with a wide black band, the apex and outer margin broadly bordered with black. Secondaries: the apex and outer margin bordered with black. Antennæ black; the head, thorax, and abdomen greyish black.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

Allied to *G. altaba*, Druce, but very distinct.

ELORIA, Walk.

ELORIA CISSUSA, sp. n. (Plate XX. figs. 13 ♂, 15 ♀.)

*Male.* Primaries and secondaries dark brown, semihyaline near the base of both wings. Primaries crossed beyond the middle by a wide cream-coloured band, the veins crossing the band dark brown. Secondaries with a cream-coloured streak nearest the costal margin, extending from the base to the outer margin; the fringes of both wings dark brown. Underside similar to the upper-side, but with the cream-coloured band much extended over the wing. Secondaries cream-coloured, with the costal and outer margins broadly bordered with dark brown. Antennæ, palpi, head, thorax, and abdomen dark brown; the collar, underside of the thorax, abdomen, and legs yellowish brown.

*Female.* Primaries cream-colour, the costal margin, apex, outer and inner margins broadly bordered with dark brown. Secondaries cream-colour bordered with dark brown, the fringes dark brown; in other respects similar to the male; the underside the same as the upperside.

Expanse, ♂ 2 inches, ♀  $2\frac{1}{2}$  inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A very distinct species, allied to *E. ombrea*, Druce.

## ELORIA CLODIA, sp. n.

*Male.* Primaries and secondaries semihyaline black. Primaries with a large round cream-coloured spot about the middle of the wing. Secondaries with a few cream-coloured scales at the end of the cell; the fringe of both wings black. Underside similar to the upperside, but paler, and the cream-coloured marks more suffused over the wings. Antennæ and palpi black; head and collar bright yellow; thorax and abdomen black; the underside of the abdomen yellow; legs greyish black.

*Female.* Similar to the male.

Expanse, ♂  $1\frac{1}{2}$  inch, ♀  $2\frac{1}{10}$  inches.

*Hab.* Amazons, Santarem (*Leech, Mus. D.*).

## Fam. LASIOCAMPIDÆ.

## APATELODES, Pack.

## APATELODES PANDARA, sp. n.

*Male.* Allied to *Apatelodes firmeana*, Cr., and very similar in colour, but not quite so grey. The narrow lines crossing the primaries are straight, not curved as in that species; the second and third line crossing the wing join at the anal angle and form a V-shaped mark; the lines on the underside of both wings are also straight; the reddish-brown mark on the primaries near the apex is extended further down the outer margin.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

## APATELODES CIRNA, sp. n.

*Male.* Primaries greyish brown, palest along the costal margin. An indistinct wavy whitish line extends from the apex to the anal angle; a large dark brown spot edged with white on the inner margin, close to the base; a small black spot at the end of the cell; on the inner margin above the anal angle the wing is pale fawn-colour, crossed by a short reddish-brown band that does not reach the cell. Secondaries greyish brown, broadly bordered with darker brown; the fringes of both wings dark brown. Underside: primaries greyish fawn-colour, the apex and part of the outer margin dark brown; secondaries fawn-colour, a spot at the end of the cell and two wavy lines crossing the wing from the costal to the inner margin dark brown, the second line edged with white on the outer side, the outer margin broadly bordered with dark brown. The head, antennæ, thorax, abdomen, and legs brownish fawn-colour.

Expanse  $2\frac{1}{10}$  inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A very distinct species.

## TAGORA, Walk.

## TAGORA CORAX, sp. n.

*Female.* Primaries and secondaries pale greyish fawn-colour,

palest near the base of both wings ; a brown spot in the cell ; both wings crossed beyond the middle from the costal to the inner margin by a dark brown line, edged on the inner side with a narrow fawn-coloured line, and with several indistinct wavy brown lines ; the outer portion of both wings thickly irrorated with black scales, the fringes pale brown. Underside very similar to the upperside, but without the straight lines crossing the wings, and with a white spot at the apex of the primaries. Head, antennæ, front of the thorax, and collar black ; a tuft of hair at the base of the antennæ yellow ; thorax and tegulæ greyish fawn-colour ; abdomen yellowish fawn-colour. Legs, the coxæ and femora yellowish fawn-colour ; the tibia and tarsus black.

Expanse  $4\frac{1}{4}$  inches.

*Hab.* Mexico, Jalapa (*M. Trujillo*).

I have placed this insect in the genus *Tagora* with considerable doubt, and probably when the male is known it will require a new genus.

#### Fam. LIMACODIDÆ.

##### SCOPELODES, Westw.

##### SCOPELODES WHITELYI, sp. n.

Primaries silky fawn-colour, the outer half of the wing the palest, the costal margin brownish at the base. Secondaries pinkish fawn-colour, the fringes of both wings yellowish brown, the underside of both wings yellowish fawn-colour. Antennæ, palpi, and front of head dark brown ; head, thorax, and base of the abdomen yellowish fawn-colour ; the abdomen and legs fawn-colour.

Expanse  $2\frac{3}{4}$  inches.

*Hab.* British Guiana, Essequibo River (*Whitely, Mus. D.*).

Allied to *S. sericea*, Butler, from N. India.

#### Fam. ZERENIDÆ.

##### NIPTERIA, Guen.

##### NIPTERIA CHTHONIA, sp. n.

*Male.* Primaries and secondaries uniform smoky brown. Secondaries slightly paler at the base. Underside : primaries pale brown, the costal margin banded with dark brown, a dark brown streak at the end of the cell, beyond which a cream-coloured line crosses the wing from the costal to the inner margin ; a submarginal wavy cream-coloured line extends from the apex to the anal angle. Secondaries pale brown ; the costal margin, a wide streak from the base along the inner margin, and a large spot near the anal angle dark brown ; a wavy creamy-white line crosses the wing beyond the middle from the costal to the inner margin ; the fringes of both wings pale brown. The head, antennæ, tegulæ, thorax, abdomen, and legs dark brown.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*), Loja (*Coll. Dognin*).  
A small species, allied to *N. discoloraria*, Herr.-Schäff.

NIPTERIA CISOESSA, sp. n. (Plate XX. fig. 11.)

*Male.* Primaries and secondaries pale grey, irrorated with darker scales along the costal margin and at the apex of the primaries; the fringe of both wings alternately black and grey. Underside: primaries pale brown, darker on the costal margin near the base and near the apex, the costal margin and the apex irrorated with white scales, a dark brown streak at the end of the cell. Secondaries dark brown, irrorated with white scales; a dark brown spot at the end of the cell. Antennæ black. Head, thorax, and abdomen grey, each segment of the abdomen edged with dark brown. Legs blackish brown.

Expanse  $1\frac{5}{10}$  inch.

*Hab.* Ecuador, Chiguinda, Sarayacu, and Intaj (*Buckley, Mus. D.*); Loja (*Coll. Dognin*).

A distinct species, not allied to any species known to me.

NIPTERIA PERILLA, sp. n.

*Male.* Primaries and secondaries dark silky brown. Primaries crossed from the costal to the inner margin by two darker brown lines, the veins dark brown. Secondaries crossed below the middle from the apex to the inner margin by a narrow brown line, the fringes of both wings brown. Underside similar to the upper-side, but paler in colour. Antennæ black; head, thorax, abdomen, and legs brown.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*); E. Peru, Cosnipata Valley (*Whitely, Mus. D.*).

Allied to *N. impunctata*, Thierry-Mieg, from which it is at once distinguished by the dark brown hind wings.

NIPTERIA PHILOMELA, sp. n. (Plate XX. fig. 16.)

*Male.* Primaries white, the costal margin, the apex, outer and inner margins bordered with greyish black, very broadly at the apex; the costal margin has three white spots, the first and second nearest the base, the third beyond the middle. Secondaries white, the outer margins from the apex to the anal angle broadly bordered with greyish black, the fringe of both wings alternately white and black. Underside: primaries white, the costal margin, apex, and outer margin clouded with brown. Secondaries pale brown, the cell and a spot beyond white. Antennæ and palpi black. Head, thorax, abdomen, and legs brown, the underside of the abdomen greyish.

Expanse 2 inches.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*), Loja (*Coll. Dognin*).

I have four males of this species, which do not show the slightest variation.

## NIPTERIA CLETAGORA, sp. n.

*Male.* Primaries pale fawn-colour, slightly hyaline and crossed from the costal to the inner margin by three very indistinct brown lines. Secondaries creamy white, the fringe dark fawn-colour. Underside very similar to the upperside, but the lines on the primaries are more distinct. Antennæ black. Head, thorax, abdomen, and legs dark fawn-colour.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*), Loja (*Coll. Dognin*). A small species allied to *N. diaphanata*, Dognin.

## NIPTERIA PHOCUSA, sp. n.

*Male.* Primaries and secondaries whitish hyaline, the veins black. Primaries: the costal margin, apex, and outer margin black; a black line crosses the wing beyond the middle from the costal to the anal angle. Secondaries bordered with black from the apex to the anal angle and crossed beyond the middle by a narrow black line. Antennæ black. Head, thorax, abdomen, and legs greyish black; tegulæ greyish white.

Expanse  $1\frac{3}{4}$  inch.

*Hab.* S. Brazil, Porto Real (*Mus. D.*).

This species is not closely allied to any known to me.

## NIPTERIA CLEONA, sp. n.

*Male.* Primaries slate-colour, crossed about the middle from the costal to the inner margin by a wide white band. Secondaries white, broadly bordered from the apex to the anal angle with slate-colour, the fringe of both wings slate-colour. Underside: primaries pale brown, the white band very similar to the upperside, the outer margin from the apex to the anal angle whitish. Secondaries uniformly pale brown. Antennæ blackish brown. Head, thorax, and abdomen slate-colour; legs greyish brown.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

Very distinct from any species known to me.

## NIPTERIA PANIA, sp. n. (Plate XX. fig. 12.)

*Male.* Primaries white, the costal margin and the apical half of the wing black. Secondaries white, the costal, outer and inner margins broadly bordered with black, the fringes of both wings black. Underside almost identical with the upperside, excepting that the primaries have a large white spot at the apex. Antennæ, head, thorax, abdomen, and legs black.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

A small species, allied to *N. cleona*, Druce.

## NIPTERIA PANTHEA, sp. n.

*Male.* Primaries white, the apex broadly bordered with blackish

brown. Secondaries white, bordered with blackish brown, the fringes alternately white and black. Underside: primaries similar to the upperside, but with a white spot at the apex. Secondaries white, clouded with brown; the veins dark brown. Antennæ black; front of head yellow; head, thorax, and abdomen greyish black. Underside of abdomen and legs white.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A very distinct species, allied to *N. pania*, Druce.

NIPTERIA CLYTIA, sp. n. (Plate XXI. fig. 1.)

*Male.* Primaries dusky hyaline; the costal margin, a wide band crossing the wing beyond the middle, the apex and inner margin all black. A wide white band crosses the wing near the apex from the costal to the outer margin above the anal angle. Secondaries dusky hyaline; the apex, outer and inner margin bordered with black; the fringes of both wings black. Underside: primaries similar to the upperside, but with the costal margin and apex reddish brown. Secondaries with the costal margin, apex, outer and inner margins broadly bordered with reddish brown; the veins all black; a reddish-brown streak extends from the base through the middle of the cell to the outer margin, and a rather wide submarginal band of white extends from near the apex almost to the anal angle, but not quite reaching it. Antennæ, palpi, head, thorax, abdomen, and legs black; front of head, collar, and a spot on each of the tegulæ white; the underside of the abdomen white, with a black line down the middle. The female very similar to the male.

Expanse, ♂ ♀,  $2\frac{1}{2}$  inches.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

A fine species, allied to *Nipteria (Genusa) albifascia*, Mssn., specimens of which are in my collection from Bolivia.

FULGURODES, Guen.

FULGURODES PANOPEA, sp. n.

*Male.* Primaries white, dusky brown along the costal margin, and crossed by five waved pale brown lines, the first two near the base, the third and fourth beyond the middle close together, the fifth submarginal and does not reach the apex. Secondaries white; a rather wide pale brown submarginal line extends from the apex to the anal angle, above which are two short waved brown lines, partly crossing the wing. The marginal line of both wings brown; the fringe white; underside similar to the upperside, but with all the lines very indistinct. Antennæ black, tipped with white; palpi black; head, thorax, and tegulæ greyish brown; abdomen white, each segment edged with dark brown; legs white.

Expanse  $2\frac{1}{4}$  inches.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

## FULGURODES CLUACINA, sy. n.

*Male.* Primaries and secondaries creamy white; the veins, costal margin, apex, and outer margin brown; an indistinct wavy brown line crosses the wing beyond the middle. Secondaries: a submarginal dark brown line extends from the apex to the inner margin; the outer margin clouded with brown. The marginal line of both wings dark brown; the fringes cream-colour. Underside very similar to the upperside. Antennæ and palpi dark brown. Head, collar, and tegulæ pale brown; thorax and abdomen white, each segment of the abdomen broadly edged with black; legs dark brown.

Expanse  $2\frac{1}{2}$  inches.

*Hab.* Colombia, Frontano, Antioquia (*Salmon, Mus. D.*).

## NEPHODIA, Hübn.

## NEPHODIA PIERIA, sp. n.

*Male.* Primaries and secondaries greyish white, both wings with a greyish spot at the end of the cell, and with a submarginal brownish-grey line extending from the costal to the inner margin, the line on the secondaries being fainter than on the primaries. Underside similar to the upperside, but slightly darker and with the lines more distinct. Antennæ pale brown. Head, thorax, abdomen, and legs greyish white.

Expanse  $1\frac{1}{10}$  inch.

*Hab.* British Guiana, Roraima Mountain (*Whitely, Mus. D.*).

A small species, quite distinct from any known to me.

## NEPHODIA PERIMEDE, sp. n.

*Male.* Primaries and secondaries pale semihyaline brownish white, darkest along the costal margin of the primaries. Underside very similar to the upperside, but slightly darker. Antennæ dark brown; head, thorax, and abdomen pale greyish brown.

*Female* almost identical with the male.

Expanse, ♂  $1\frac{1}{10}$ , ♀  $1\frac{1}{2}$  inch.

*Hab.* British Guiana, Roraima Mountain (*Whitely, Mus. D.*).

Allied to *N. pieria*, Druce.

## NEPHODIA CISSA, sp. n.

*Male.* Primaries and secondaries whitish hyaline, with a faint brown shade; the veins near the outer margin very pale brown. Primaries crossed from the costal margin near the apex to the inner margin by a faint greyish-brown line; the marginal line and the fringe pale brown. Secondaries crossed by two greyish-brown lines, the first about the middle, the second beyond; the fringe white. Antennæ pale brown; head, thorax, and abdomen pale brown; tegulæ greyish brown; legs brown.

Expanse  $1\frac{1}{10}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).



## NEPHODIA CLÆLIA, sp. n.

*Male.* Primaries and secondaries yellowish hyaline; the costal, outer and inner margins pale fawn-colour. Primaries crossed from the costal to the inner margin by two zigzag faint brown lines, the first nearest the base, the second submarginal. Secondaries with a small spot at the end of the cell, below which a zigzag line extends from the costal to the inner margin; a second submarginal line greyish brown; the fringes of both wings pale fawn-colour. Underside the same as the upperside. Antennæ pale brown; head, thorax, abdomen, and legs yellowish fawn-colour.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Sarayacu, Intaj (*Buckley, Mus. D.*).

## NEPHODIA PHILYRA, sp. n.

*Male.* Primaries and secondaries whitish hyaline; the veins and a faint waved line crossing the wings beyond the middle very pale brown; the fringes silvery white. Antennæ pale brown; head and tegulæ yellow; thorax and abdomen white.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Intaj (*Buckley, Mus. D.*).

Allied to *N. cissa*, Druce.

## NEPHODIA COLADA, sp. n.

*Male.* Primaries and secondaries smoky hyaline black, with all the veins black. Primaries crossed beyond the middle by a very indistinct narrow black line; the fringes blackish brown. Underside as above. Antennæ black; head, thorax, abdomen, and legs dark grey.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* S.E. Brazil, Rio Janeiro (*Mus. D.*)

## Fam. L A R E N T I D Æ.

## HETERUSIA, Hübn.

## HETERUSIA COMATA, sp. n. (Plate XXI. fig. 2.)

Primaries and secondaries dark brown. Primaries with a yellowish-white, semihyaline, oval-shaped spot edged with yellow beyond the middle; the fringes of both wings alternately dark brown and white. Underside: primaries dark brown, thickly irrorated with yellow scales along the costal margin and at the apex; the spot is elongated to the costal margin, forming a band partly crossing the wing. Secondaries dark brown, thickly irrorated with yellow scales; a grey zigzag submarginal line extends from the costal to the inner margin above the anal angle; the fringe alternately brown and white. The head, antennæ, thorax, tegulæ, and abdomen dark brown; the segments of the abdomen banded with yellow; the underside of the abdomen

yellowish white. The legs above dark brown, on the underside yellowish white.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Bolivia (*Buckley, Mus. D.*).

Very distinct from any species known to me.

*HETERUSIA CONNA*, sp. n. (Plate XXI. fig. 3.)

*Male.* Primaries black; the veins at the base yellow, a wide orange-yellow band crosses the wing beyond the middle from the costal margin to the anal angle, which it does not quite reach. Secondaries black, with a large central elongated white spot; the fringe of both wings black. Underside very similar to the upper-side, but with more white on the secondaries. Head, antennæ, thorax, abdomen, and legs black.

*Female* identical with the male.

Expanse  $1\frac{4}{10}$  inch.

*Hab.* Ecuador, Chiguinda, Intaj (*Buckley, Mus. D.*).

*HETERUSIA PLACIDA*, sp. n. (Plate XXI. figs. 5, 6.)

*Male.* Primaries and secondaries dark orange-yellow. Primaries: the base brown, and crossed from the costal to the inner margin by three waved black bands, the first two near the base, the third beyond the middle; the apex and outer margin broadly bordered with black. Secondaries: the veins, costal margin, apex, outer margin, and a submarginal line all black; the fringes of both wings yellowish brown. Underside: primaries bright yellow; the costal margin and apex reddish brown, irrorated with grey scales, three narrow bands, partly crossing the wing, and the outer margin black. Secondaries grey, thickly irrorated with small reddish-brown scales; a spot on the inner margin and the apical part of the wing dark brown. Head, antennæ, palpi, thorax, and abdomen black; the underside of the abdomen and legs greyish brown.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

On the upperside this species slightly resembles *S. stoltzmanaria*, Oberth., but on the underside it is very different.

*HETERUSIA COMANA*, sp. n. (Plate XXI. fig. 7.)

*Male.* Primaries and secondaries dark orange-brown. Primaries crossed from the costal to the inner margin by four black bands, the first and second narrow near the base, the third and fourth wide and joined together near the anal angle, forming a large U-shaped mark, from which two short bands extend to the inner margin; the outer margin from the apex to the anal angle broadly bordered with black; the fringe alternately white and black. Secondaries: the veins, a submarginal waved line, and the outer margin from the apex to the anal angle black; the fringe yellow and black. Underside: primaries bright yellow, with the black lines as above; the costal margin and the apex greyish brown. Secondaries

brownish grey, thickly irrorated with brown scales; a row of dark brown spots crosses the wing about the middle, from the costal margin to the anal angle; the apex and outer margin dark brown. The head, antennæ, thorax, and abdomen black; the legs grey, banded with brown; underside of the abdomen greyish brown.

Expanse 1 inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

A small species, allied to *S. placida*, Druce, from which it is at once distinguished by the different shape of the bands on the primaries.

*HETERUSIA PIRENE*, sp. n. (Plate XXI. figs. 8, 9.)

Primaries and secondaries yellow. Primaries thickly irrorated with black scales at the base and partly along the inner margin; the outer margin broadly bordered with black from the apex to the anal angle; on the costal margin a large V-shaped black mark extends over the wing to the black outer margin. Secondaries thickly irrorated with black scales; the outer margin and the apex black; the fringe of both wings alternately black and white. Underside: primaries pale yellow, with the black markings very similar to those on the upperside, but thickly irrorated with grey scales. Secondaries cream-colour, thickly irrorated with dark brown scales; a broken brown band extends partly over the wing from the costal margin; the outer margin bordered from the apex nearly to the anal angle with reddish brown. The head, antennæ, thorax, and abdomen black.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

A beautiful species, not allied to any known to me.

*HETERUSIA COMBANA*, sp. n.

*Male.* Primaries and secondaries dark orange-yellow. Primaries: the costal margin black at the base; four black bands crossing the wing from the costal to the inner margin, the first and second narrow, close to the base of the wing, the third about the middle, the fourth beyond, bent outward in the middle; the outer margin broadly bordered with black, deeply dentated on the inner edge. Secondaries: the veins, a submarginal wavy line, the apex, and outer margin black; the fringe of both wings alternately black and yellow. Underside: primaries bright yellow; the costal margin greyish brown from the base to the apex; the black lines as above, but only extending halfway across the wing. Secondaries greyish brown, thickly irrorated with dark brown scales; the apex and outer margin almost to the anal angle dark grey. The head, palpi, antennæ, thorax, and abdomen black; the underside of the abdomen and legs dark greyish brown.

Expanse 1 inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

A small species, allied to *S. comana*, Druce.

HETERUSIA PLACILLA, sp. n. (Plate XXI. figs. 10, 11.)

*Male.* Primaries dark orange-red; the base, inner margin, a band crossing the wing beyond the middle, and the outer margin from the apex to the anal angle black. Secondaries black, with a wide submarginal orange-red band extending from the costal margin near the apex to the anal angle; the fringe of both wings orange-red. Underside: primaries very similar to the upperside, but considerably paler in colour, and with the costal margin and the apex shaded with reddish brown. Secondaries pale yellow, crossed from the costal to the inner margin by two bands of reddish brown; the outer margin reddish brown; a row of metallic silver spots extends round the outer margin from the apex to the anal angle; two metallic silver straight lines extend from the base to the outer margin, the first along the inner margin, the second right across the middle of the wing. The head, palpi, thorax, and abdomen black, the anal tuft and underside of the abdomen orange-red; legs reddish brown. Antennæ on the upperside alternately black and white, on the underside black.

Expanse  $\frac{3}{4}$  inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

A beautiful little species, allied to *S. chrysopterata*, Snellen, from Colombia.

HETERUSIA PINARA, sp. n. (Plate XXI. figs. 12, 13 ♂, 14 ♀.)

*Male.* Primaries red; the base, inner margin, a line crossing the wing beyond the middle from the costal to the inner margin all black; the outer margin broadly bordered with black from the apex to the anal angle. Secondaries red; the base, inner and outer margin black; the fringe of both wings reddish. Underside: primaries very similar to the upperside, but paler in colour; the apex brown. Secondaries brown, crossed about the middle by two reddish-brown bands. Head, antennæ, thorax, and abdomen black; underside of abdomen and anus reddish brown; legs brown.

*Female.* Very similar to the male, but without the black band crossing the primaries; it is also paler on the underside.

Expanse, ♂ ♀, 1 inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

Allied to *S. placilla*, Druce, but very distinct on the underside.

HETERUSIA CONON, sp. n. (Plate XXI. fig. 4.)

Primaries and secondaries black, slightly greyish at the base of both wings. Primaries crossed from the costal margin almost to the anal angle by a wide white band; the fringe of both wings black. Underside very similar to the upperside, but very much greyer in colour. Head, antennæ, thorax, and abdomen black; legs and the underside of the abdomen dark grey.

Expanse  $1\frac{1}{10}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A small species, allied to *S. dispilata*, Snellen.

## Fam. ERATEINIDÆ.

## ERATINA, Doubl.

## ERATINA PISCA, sp. n.

*Male.* Primaries black, partly crossed about the middle by a wide white band, extending from the end of the cell almost to the anal angle; two small white streaks on the costal margin. Secondaries white; the base, inner margin, and anal angle dark grey; the apex bordered with black; the fringes black and white. Underside: primaries similar to the upperside, but all the black replaced by greenish yellow. Secondaries white, very thickly irrorated with greenish yellow. Scales, head, antennæ, thorax, and abdomen black; underside of the abdomen and legs greenish yellow.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Chigninda (*Buckley, Mus. D.*).

Not like any species known to me, but nearest *E. masura*, Druce.

## ERATINA CORNELIA, sp. n.

*Female.* Primaries black; the base and inner margin and a round spot beyond the middle white. Secondaries white, broadly bordered with black from the apex to the inner margin; the fringe of both wings black and white. Underside: primaries, the basal half of the wing white, the apical half reddish brown, the white spot as above almost joined from the costal margin by a large V-shaped white band; a submarginal fine yellow line extends from the costal margin near the apex to the anal angle. Secondaries white, broadly bordered with reddish brown; a spot on the middle of the costal margin and two on the inner margin reddish brown; a submarginal fine yellow line extends from the apex to the anal angle. Head, antennæ, thorax, and abdomen black; palpi white, with the third joint black; legs greyish brown.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Bolivia (*Buckley, Mus. D.*).

A very distinct species, allied to *E. tryphosa*, Druce.

## TROCHIODES, Guen.

## TROCHIODES CERESIA, sp. n.

*Male.* Primaries black, with a large, semihyaline, white, elongated spot beyond the middle. Secondaries hyaline white; the base, apex, outer and inner margins broadly bordered with black. Underside similar to the upperside. The head, antennæ, thorax, abdomen, and legs black.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Colombia, Antioquia (*Salmon, Mus. D.*).

## TROCHIODES PLAGIA, sp. n. (Plate XXI. fig. 15.)

*Male.* Primaries black, thickly irrorated with white scales near the base; a wide white band crosses the wing beyond the middle, extending from the costal margin almost to the anal angle. Secondaries white; the base and inner margin grey; the apex and

outer margin bordered with black ; the fringe of both wings black. Underside very similar to the upperside, but with the base of the primaries white. The head, antennæ, palpi, thorax, and legs greyish black ; underside of the abdomen white.

*Female* almost identical with the male.

Expanse, ♂ ♀,  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Intaj, Chiguinda (*Buckley, Mus. D.*).

TROCHIODES CREUSA, sp. n. (Plate XXI. figs. 16, 17.)

*Male.* Primaries and secondaries black ; a faint greyish band extends from the base to the end of the cell, and a narrow yellowish-white line partly crosses the wing near the apex. Secondaries slightly greyish near the base ; the fringe of both wings black. Underside : primaries very similar to the upperside, but with the markings much more distinct. Secondaries white, broadly bordered with black. Head, antennæ, palpi, thorax, abdomen, and legs black ; the collar orange.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Colombia, Antioquia (*Salmon, Mus. D.*).

TROCHIODES POLYMELA, sp. n. (Plate XXI. fig. 18.)

Primaries blackish brown, paler at the base ; a wide white band crosses the wing beyond the middle from the costal margin almost to the anal angle. Secondaries blackish brown, crossed from the apex to the inner margin by a wide white band. Underside similar to the upperside, but much whiter ; the fringe of both wings black. Head, antennæ, thorax, and abdomen black.

Expanse  $1\frac{1}{2}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

Allied to *T. plagia*, Druce, but quite distinct.

TROCHIODES CORMASA, sp. n. (Plate XXI. figs. 19, 20.)

*Female.* Primaries black, with a large oval-shaped creamy white mark on the inner margin, extending from the base almost to the anal angle. Secondaries creamy white, bordered with black from the apex to the anal angle ; the fringe of both wings alternately white and black. Underside : primaries rich purplish brown, streaked with yellow at the base ; a rather wide, short, white band partly crosses the wing from about the middle of the costal margin ; a submarginal waved yellow line extends from near the apex to the anal angle. Secondaries creamy white, the apex and outer margin bordered with purplish brown ; two small yellow spots close to the apex. Head, antennæ, palpi, and thorax black ; collar and tegulæ white ; abdomen and legs creamy white.

Expanse  $1\frac{3}{10}$  inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

A beautiful species, very distinct from any other known to me.

TROCHIODES CONIADES, sp. n. (Plate XXI. fig. 21.)

*Male.* Primaries brownish black, white from the base to beyond the middle of the inner margin ; the fringe black. Secondaries

white, with the apex broadly bordered with black. Underside identical with the upperside. Head, antennæ, palpi, and thorax black; tegulæ and abdomen white; legs black.

Expanse  $1\frac{1}{4}$  inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

A small species, allied to *T. cormasa*, Druce, which it closely resembles on the upperside, but on the underside it is very different.

TROCHIODES (?) CORAS, sp. n.

*Male.* Primaries brownish black; a rather wide white streak extends from the base to the middle of the wing, beyond which and nearer the apex is a round white spot. Secondaries semi-hyaline white, bordered with brownish black from the apex to the anal angle; the inner margin greyish; the fringe of both wings black. Underside almost exactly like the upperside. Head, antennæ, thorax, and abdomen black.

Expanse 1 inch.

*Hab.* Ecuador, Sarayacu (*Buckley, Mus. D.*).

TROCHIODES (?) PLATÆA, sp. n. (Plate XXI. fig. 22.)

*Male.* Primaries black, an angular-shaped large white spot on the inner margin near the base, an orange-yellow spot on the outer margin below the apex. Secondaries white, broadly bordered with black; the fringe of both wings black. Underside very similar to the upperside, the orange-yellow spot on the outer margin larger. Antennæ, head, thorax, abdomen, and legs black; the underside of the abdomen white.

*Female* the same as the male.

Expanse 1 inch.

*Hab.* Ecuador, Chiguinda (*Buckley, Mus. D.*).

EXPLANATION OF THE PLATES.

PLATE XIX.

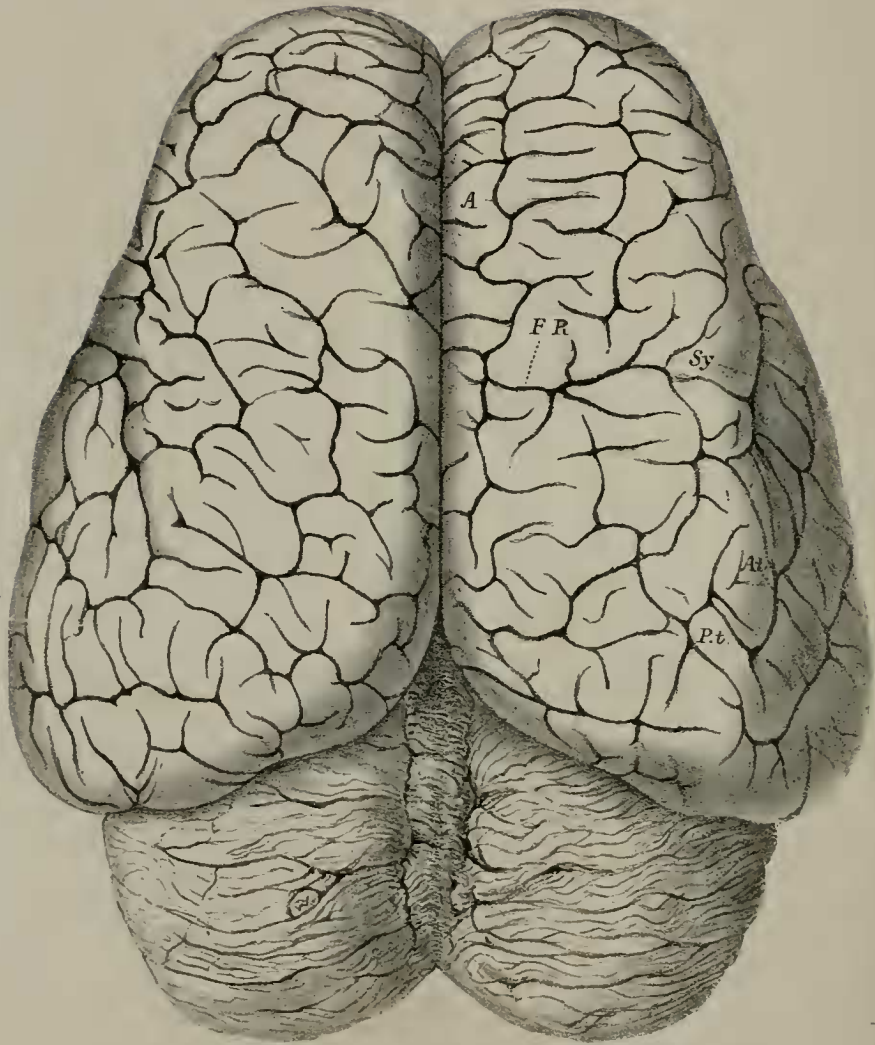
- |  |   |
|--|---|
| Fig. 1. <i>Agyrta phylla</i> , p. 282.     | Fig. 9. <i>Devara pallor</i> , p. 289.  |
| 2. <i>Charidæa orbona</i> , p. 283.        | 10. — <i>chepta</i> , p. 290.           |
| 3. <i>Metastatia chelidon</i> , p. 285.    | 11, 12. <i>Nelo toxicrata</i> , p. 290. |
| 4. — (?) <i>pales</i> , p. 285.            | 13. <i>Lauron osiba</i> , p. 290.       |
| 5. <i>Neozatrephes telesilla</i> , p. 287. | 14. — (?) <i>chariata</i> , p. 291.     |
| 6. <i>Eucereon chalcodon</i> , p. 287.     | 15. — <i>batesi</i> , p. 291.           |
| 7. <i>Devara charisia</i> , p. 289.        | 16. — <i>padua</i> , p. 291.            |
| 8. <i>Halisidota pandama</i> , p. 288.     | 17. <i>Neolaurona ovia</i> , p. 292.    |

PLATE XX.

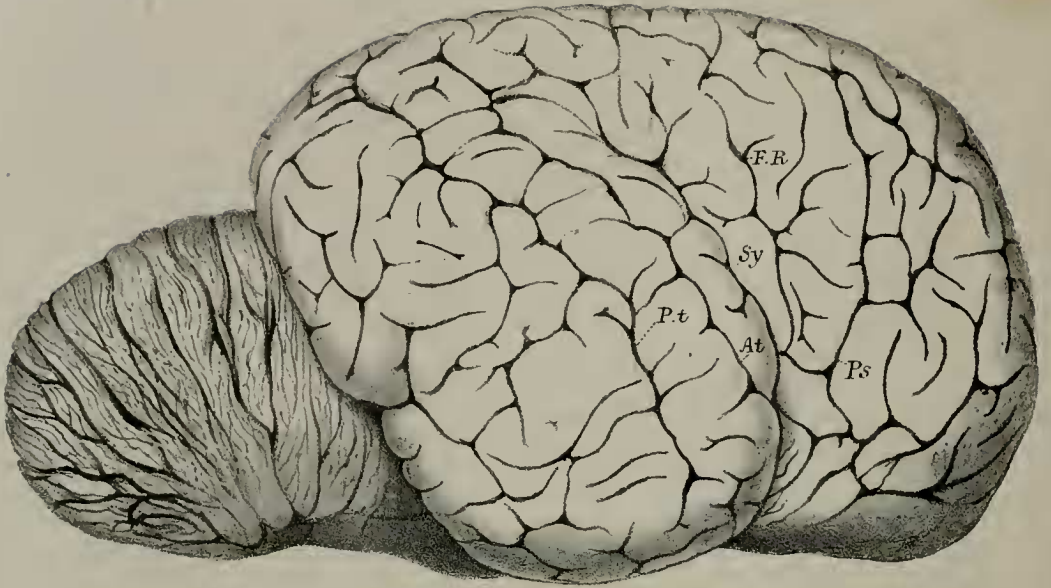
- |  |   |
|--|---|
| Fig. 1. <i>Dioptis charila</i> , p. 292.   | Fig. 10. <i>Euchontha ciris</i> , p. 297. |
| 2. — <i>roraima</i> , p. 292.              | 11. <i>Nipteria cissoessa</i> , p. 300.   |
| 3. — <i>pallene</i> , p. 293.              | 12. — <i>pania</i> , p. 301.              |
| 4. — <i>egla</i> , p. 293.                 | 13. <i>Eloria cissusa</i> ♂, p. 297.      |
| 5. — <i>cheledonis</i> , p. 293.           | 14. <i>Gonora paphia</i> , p. 296.        |
| 6. — <i>charon</i> , p. 294.               | 15. <i>Eloria cissusa</i> ♀, p. 297.      |
| 7. <i>Monocreaagra orthyades</i> , p. 295. | 16. <i>Nipteria philomela</i> , p. 300.   |
| 8. — (?) <i>chares</i> , p. 295.           | 17. <i>Genussa cluaca</i> , p. 297.       |
| 9. — (?) <i>chorax</i> , p. 295.           |   |



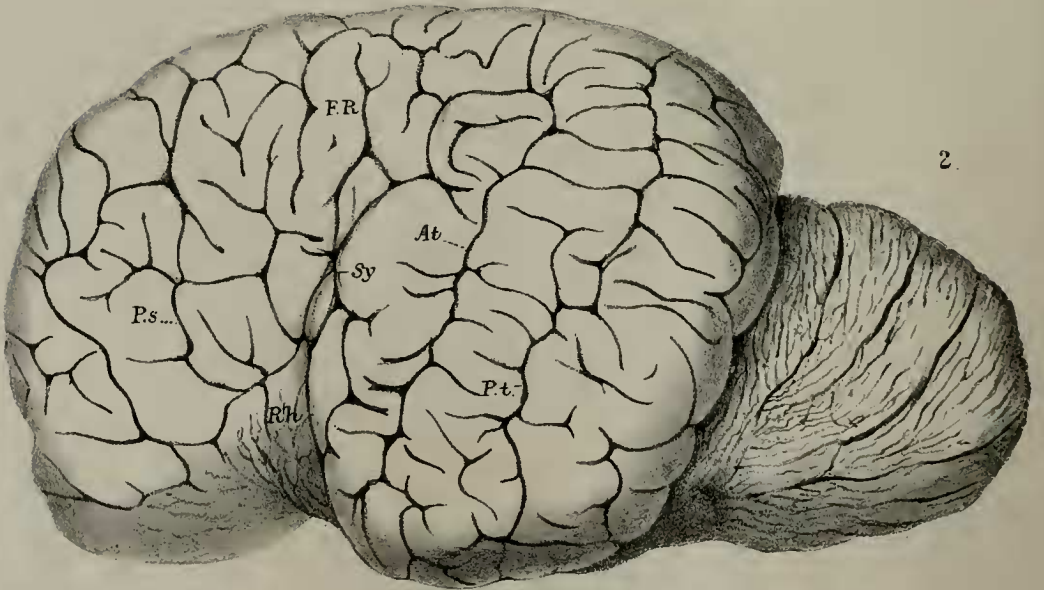








1.



2.

## PLATE XXI.

- Fig. 1. *Nipteria clytia*, p. 302.  
 2. *Heterusia comata*, p. 304.  
 3. — *conna*, p. 305.  
 4. — *conon*, p. 307.  
 5, 6. *Heterusia placida*, p. 305.  
 7. *Heterusia comana*, p. 305.  
 8, 9. *Heterusia pirene*, p. 306.  
 10, 11. — *placilla*, p. 307.

- Fig. 12, 13 ♂, 14 ♀. *Heterusia pinara*, p. 307.  
 15. *Trochiodes plagia*, p. 308.  
 16, 17. — *creusa*, p. 309.  
 18. — *polymela*, p. 309.  
 19, 20. — *cormasa*, p. 309.  
 21. — *coniades*, p. 309.  
 22. — (?) *platea*, p. 310.

2. On the Brain of the African Elephant. By FRANK E. BEDDARD, M.A., F.R.S., Prosector to the Society.

[Received February 28, 1893.]

(Plates XXII. & XXIII.)

So far as I am aware the only existing figures and description of the brain of this animal are to be found in a paper upon the Carnivorous brain by Dr. Krueg<sup>1</sup>. Sir W. Turner, in his account of the Mammalian brain in general, refers<sup>2</sup> only to this source of information. Indeed, the opportunities of dissecting the African Elephant at all have been very few. Mr. W. A. Forbes, in 1879<sup>3</sup>, could enumerate only five observers who had published accounts of the viscera of that animal. I am glad, therefore, to be able to offer to the Society a contribution towards a more complete knowledge of the anatomy of *Elephas africanus* in the description of its brain which I proceed to give. The brain which I propose to describe is that of a young male which died in the Society's Gardens on January 15th of the present year. The size of the brain unfortunately prevented its being kept entire for the purposes of a museum specimen; it was soon found necessary to cut the brain into four pieces; the hemispheres were separated by a longitudinal cut, and the cerebellum was also divided longitudinally into two halves. When this was done the interior of the brain was found to be in a rather inferior state of preservation. Later on it became harder. As, however, the superficial part of the brain has kept well, I am able to deal satisfactorily enough with the convolutions of the hemispheres and with the cerebellum; that is, of course, with regard to the distribution and development of the furrows. Krueg's figures<sup>4</sup> of the brain are merely meant to illustrate those fissures which bear an importance, according to his views, through the entire series, the remaining fissures being indicated by dotted lines. Three views are given by Krueg of the brains of both Asiatic

<sup>1</sup> "Ueber die Furchen auf der Grosshirnrinde der zonoplacentalen Säugthiere," Zeitschr. wiss. Zool. xxxiii. p. 652.

<sup>2</sup> "The Convulsions of the Brain; a Study in Comparative Anatomy," Journ. Anat. & Phys. xxv. p. 105.

<sup>3</sup> "On the Anatomy of the African Elephant (*Elephas africanus*, Blum.)," P. Z. S. 1879, p. 420.

<sup>4</sup> On pl. xxxviii. of his memoir.

and African Elephants. The internal lateral, superficial, and external lateral aspects are figured.

I shall now proceed to describe the brain examined by myself.

#### DESCRIPTION OF THE BRAIN.

The outlines of the hemispheres (Plate XXII.) are not by any means exactly as have been depicted by Krueg; the comparatively narrow anterior half is, in my specimen, barely so long as the broader posterior section; the lengths in my specimen were (rather roughly)  $4\frac{1}{2}$  and 3 inches respectively. It seems likely, therefore, that the general form of the hemispheres in this Elephant may now be fixed with something like certainty, and that the differences between the outlines of the brain in the Indian and African Elephants as portrayed in Krueg's sketches are not real differences, so far at any rate as concerns the proportions referred to above. I did not find that the rhinal fissure had so long a visible course upon the lateral aspect of the brain as it is depicted by Krueg; this gives to the brain an altogether peculiar appearance in these drawings, which do not seem to be a correct expression of the facts as seen in the brain examined by myself. In my specimen the temporal lobe was directed much more forwards (see Plate XXIII.) so as to largely cover the rhinencephalon and conceal a considerable extent of the rhinal fissure.

The two hemispheres are unsymmetrical as regards their convolutions, as is usually the case in complexly folded brains; accordingly I describe each separately.

#### *Right Hemisphere.*

The large *temporal lobe* is directed forwards and is separated from the parietal lobe by the long and deep *Sylvian fissure* (Plate XXIII. fig. 1, *Sy*), which measures from end to end about 4 inches. From the upper extremity of the Sylvian fissure two or three small fissures radiate outwards, joining the inner of the longitudinal fissures which traverse the temporal lobe. Just before the extremity of the Sylvian fissure an evidently important (because deep), though short, fissure runs upwards at right angles, or nearly so, to the Sylvian fissure; this fissure just stops short of joining the conspicuous fissure of Rolando. It is, perhaps, to be compared to the *ascending limb of the Sylvian fissure* in other Mammalia. Anteriorly to this there is a deep fissure which I regard as being possibly comparable to the *fissure of Rolando* (Plate XXIII. fig. 1, *F.R.*). It reaches the Sylvian fissure below, and runs obliquely upwards, reaching to within about  $\frac{3}{4}$  of an inch of the median interhemispherical sulcus. When the brain is viewed from above this fissure of Rolando, if I am right in so identifying it, is seen to divide the hemisphere into approximately two halves. The importance of this furrow was unluckily illustrated by the hemisphere breaking into two halves at this point, a result largely due of course to its great depth and extent. Still in front of this is another important fissure which divides also into two branches, in the fashion of the letter Y, and in front of this again a second also

Y-shaped fissure running at right angles to the longitudinal axis of the brain; one of these, but I am not sure which, is probably the *pre-Sylvian fissure* (Plate XXIII. fig. 1, *P.s*).

The front aspect of the brain is marked by two principal fissures, of which the innermost (that nearest the interhemispherical sulcus) appears to me to be the anterior termination of a more or less strongly marked furrow running on the dorsal aspect of the hemisphere for more than the anterior half at a distance of rather less than an inch from the interhemispherical sulcus. The second of the two fissures observable on the frontal lobe of the brain is almost as far from the last mentioned as from the Y-shaped fissure referred to above. This fissure seems also to be the anterior end of another longitudinal furrow, which curves round posteriorly and is continuous with the first of the two fissures dividing the temporal lobe of the brain longitudinally.

The temporal lobe is divided by two furrows, of which the anterior is approximately equidistant from the anterior margin of the temporal lobe and from the posterior furrow, into three gyri—an antero-temporal, a medio-temporal, and a postero-temporal. The *posterior temporal fissure* (Plate XXIII. fig. 1, *P.t*) curves over the hemisphere and divides off an occipital lobe, becoming continuous with the sulci of the inner face of the hemisphere. The *anterior temporal furrow* bends round and forms the posterior of the three branches of the Sylvian.

#### *Left Hemisphere.*

The left hemisphere of the brain (Plate XXIII. fig. 2) shows many detailed differences from the right; in more complicated brains there is of course usually such an asymmetry; the existence of this asymmetry, however, perhaps enables one to abstract from a consideration of both halves of the brain a list of the more important furrows.

On the upper surface of the hemispheres the two longitudinal furrows are not recognizable anteriorly; they are lost by the more marked cross furrowing. Posteriorly, however, the outer of the two is very deep, and, therefore, conspicuous; it is continuous, as on the right side, with the middle temporal fissure. Both the *temporal sulci* are as pronounced on the left side as on the right. The *fissure of Rolando*, however, if I am right in so identifying it, is by no means so extensive on the left side. It seems to be divided into two tracts, of which that continuous with the *Sylvian* is the deepest; the upper half comes to within about the same distance of the internal margin of the hemisphere. Anteriorly there are the same two Y-shaped fissures, of which the first (counting from behind forwards) is, as on the right hemisphere, the deeper. The temporal fissures are as on the right side.

#### *Cerebellum.*

The cerebellum is neither figured nor described by Krueg. As shown in the accompanying drawing (Plate XXII.), it has a narrow median lobe, which is visible in the cerebellum only as seen from

above; when viewed from behind the median lobe is concealed by the lateral lobes, which completely cover it over. Each of the lateral lobes is divided by a number of deep cross-running furrows. These are placed at irregular intervals, though parallel in direction; the cerebellum is thus divided up into a series of flat plates of varying thicknesses. Some of these fissures, which are all very deep, are not continuous right round the cerebellum; the majority of them, however, are. The two halves of the cerebellum are not symmetrical as regards the furrows.

The plate-like discs, in which the lateral lobes are cleft, are about 18–20 in number. The *small median lobe of the cerebellum is in marked contrast to what is to be met with in, at any rate, many Ungulates and Carnivora.*

*Remarks upon the principal Sulci.*

The preceding is, I believe, so far as it goes, an accurate description of the principal furrows. It now remains for me to attempt to determine which are the most important of these.

Krueg indicates five furrows of first-rate importance in the brains of both African and Indian Elephants:—

(1) *Sylvian fissure*, divided below into *processus anterior* and *processus posterior*, which join above to form *processus acuminis*.

(2) *Pre-Sylvian fissure*.

(3) *Posterior supra-Sylvian fissure*.

(4) *Sutural fissure*.

(5) *Coronal fissure*.

The diagrams do not seem to me to bring out close resemblances between the Elephantidæ and the other mammals (*Carnivora*, *Hyrax*) with which they are compared. Dr. Krueg, however, considers that there are no characters peculiar to the Proboscidian brain, but that they approach the *Carnivora* more nearly than they do the *Ungulata*.

In the brains of the *Carnivora* the furrows on the surface of the brain have an arcuate arrangement round the Sylvian fissure. In the *Ungulata*, as in the Rodents, the longitudinal fissures seem to be straighter and not to present, at any rate in so marked a degree, an arch-like course.

I admit, however, that the great development of the temporal lobe in the Elephant is a point of resemblance to the *Carnivora* (also of course to the *Primates*, which rather takes away from its significance), and that the furrows of the African Elephant's brain, as I read them, are more decidedly arcuate than they are represented to be by Krueg. But it is so extremely difficult to compare the furrows of a complexly convolute brain with those of a smoother brain that I refrain from venturing upon a definite opinion as to the affinities indicated by the study of the Elephant's brain.

I can identify all the fissures drawn by Krueg, with the exception of the anterior (or posterior, as the case may be) branch of the Sylvian. I could not see quite so marked a superficial boundary